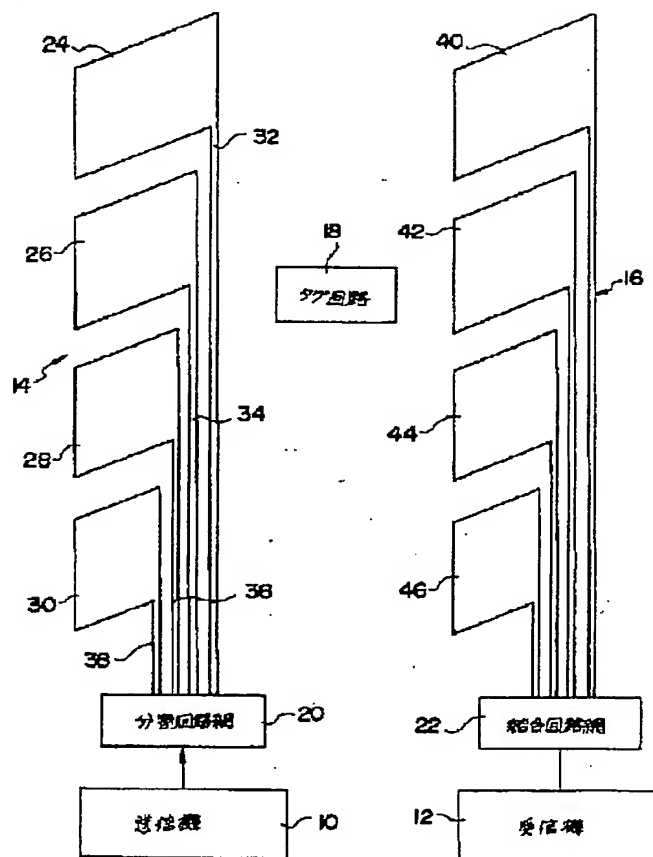


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## Patent Abstracts of Japan

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INVENTOR : GEORGE W KARUTONER;  
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TITLE : INDIVIDUAL POWER SUPPLY  
MULTIPLE LOOP ANTENNA FOR  
ELECTRONIC SECURITY SYSTEM



ABSTRACT : PURPOSE: To establish exact phase and amplitude balance, and to extend a valid frequency range by individually connecting each loop of a transmission antenna with a divided circuit network, connecting each loop of a reception antenna with a connected circuit network, allowing an article to pass through the antennas for detection, and controlling each loop independently from the other loops.

CONSTITUTION: Antenna systems 14 and 16 are positioned in mutually separated parallel relation, and the presence of a resonance tag circuit 18 which can pass through a space between those antennas is detected by a security system. A divided circuit network 20 is arranged between a transmitter 10 and the transmission antenna 14, and a connected circuit network 22 is arranged between a receiver 12 and the reception antenna system 16. The transmission antenna 14 is constituted of four coplanar loops 24, 26, 28, and 30, and the arbitrary number of coplanar loops can be provided. Also, each loop can be properly driven by making the valid total loop areas of the loops driven in one phase equal to the valid total loop areas of the loops driven in an inverse phase.

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